

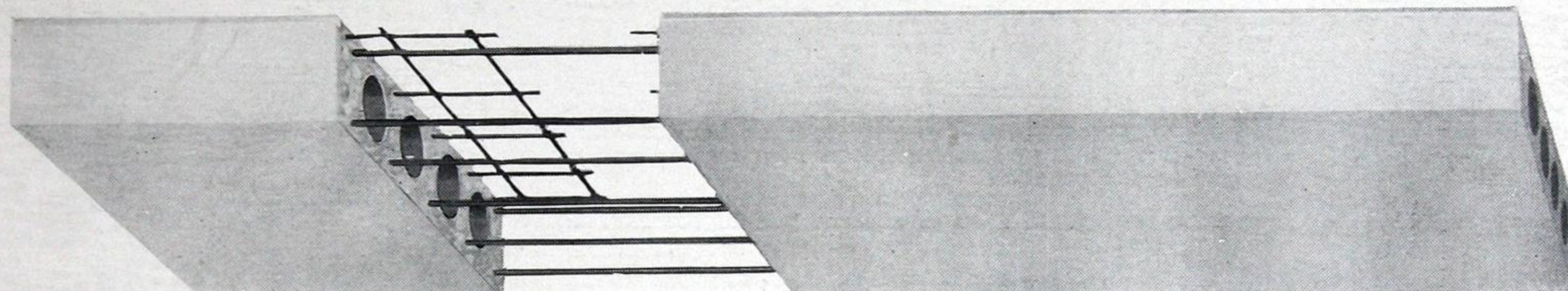
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JAN 2 1920

# PYROBAR

PATENTED

## LONG SPAN HOLLOW ROOF TILE



Maximum Insulation in Roof Construction

Low Conductivity  
Minimum Condensation  
Flat Uniform Ceiling  
Maximum Light Reflection  
Light Weight---Low Cost

FRANKLIN  
INSTITUTE  
LIBRARY

**B**uildings Warmer in Winter  
— Cooler in Summer

### UNITED STATES GYPSUM COMPANY

*World's Largest Producers of Gypsum Products*

205 West Monroe Street : : : Chicago

New York Buffalo Cleveland Detroit Minneapolis Kansas City San Francisco



**P**YROBAR Gypsum Long Span Hollow Roof Tile have been developed to meet the demand for a roof deck presenting a uniformly flat ceiling surface and possessing maximum insulation. The tile, which are steel reinforced, are factory-made in various lengths up to 8 ft. and in 18-in. widths, their weight being approximately 18 lbs. per sq. ft.

## G. F. GEBHARDT

### MECHANICAL ENGINEER

INSPECTION, TESTS AND  
CONSULTATION

OFFICE AND LABORATORIES  
ARMOUR INSTITUTE OF TECHNOLOGY

Chicago, April 26, 1918.

United States Gypsum Company,  
205 West Monroe Street  
Chicago, Illinois.

Gentlemen,-

The following results were obtained from thermal conductivity tests of materials of construction submitted by you and designated by you as indicated.

The conductivity is expressed in terms of B.t.u. transmitted per hour per square foot of surface per degree Fah. difference in temperature.

	Relative Thermal Conductivity
3" solid concrete slab, 1-2-4 mixture,	0.75
2" yellow pine plank,.....	0.385
1" solid cement tile.....	0.99
3" solid Gypsum roof tile.....	0.25
4" hollow Gypsum roof tile.....	0.20

The conductivity of ordinary window glass has been found by various experiments to be approximately one B.t.u., so that the above results may be interpreted in terms of the conductivity of window glass as unity.

Respectfully submitted,  
G.F. GEBHARDT.

*J. L. Peebles*

**LOW CONDUCTIVITY** Of all forms of roof  
**MINIMUM** deck, this type of  
**CONDENSATION** Pyrobar affords the  
greatest degree of  
protection against condensation or "sweating,"  
owing to the fact that Pyrobar, because of its low  
conductivity, will maintain a temperature at the  
underside of the roof the same as the average tem-  
perature in the room. Consequently, there will be  
little or no condensation caused by warm, damp air  
in the building striking a cold under-roof surface.

**INSULATION** Furthermore, these tile can be  
**OVER STEEL** laid directly on the steel fram-  
ing, so that there is from 5 in.  
to 6 in. of gypsum insulation over the steel purlins,  
which is the point where condensation is most likely  
to occur and where insulation is therefore most  
needed.

**SAVES FUEL** Three inches of Gypsum,  
**AND RADIATION** compared with the same  
thickness of concrete, will  
save 4 tons of coal per 1,000 sq. ft. of roof area per  
year, and it will reduce the required amount of  
heating equipment by 125 sq. ft. of radiation (equal  
to 290 lineal ft. of 1¼-inch pipe) per 1,000 sq. ft.  
of roof area.

**COOLER IN** Pyrobar Roof Decks also provide  
**SUMMER** maximum protection against sum-  
mer heat.

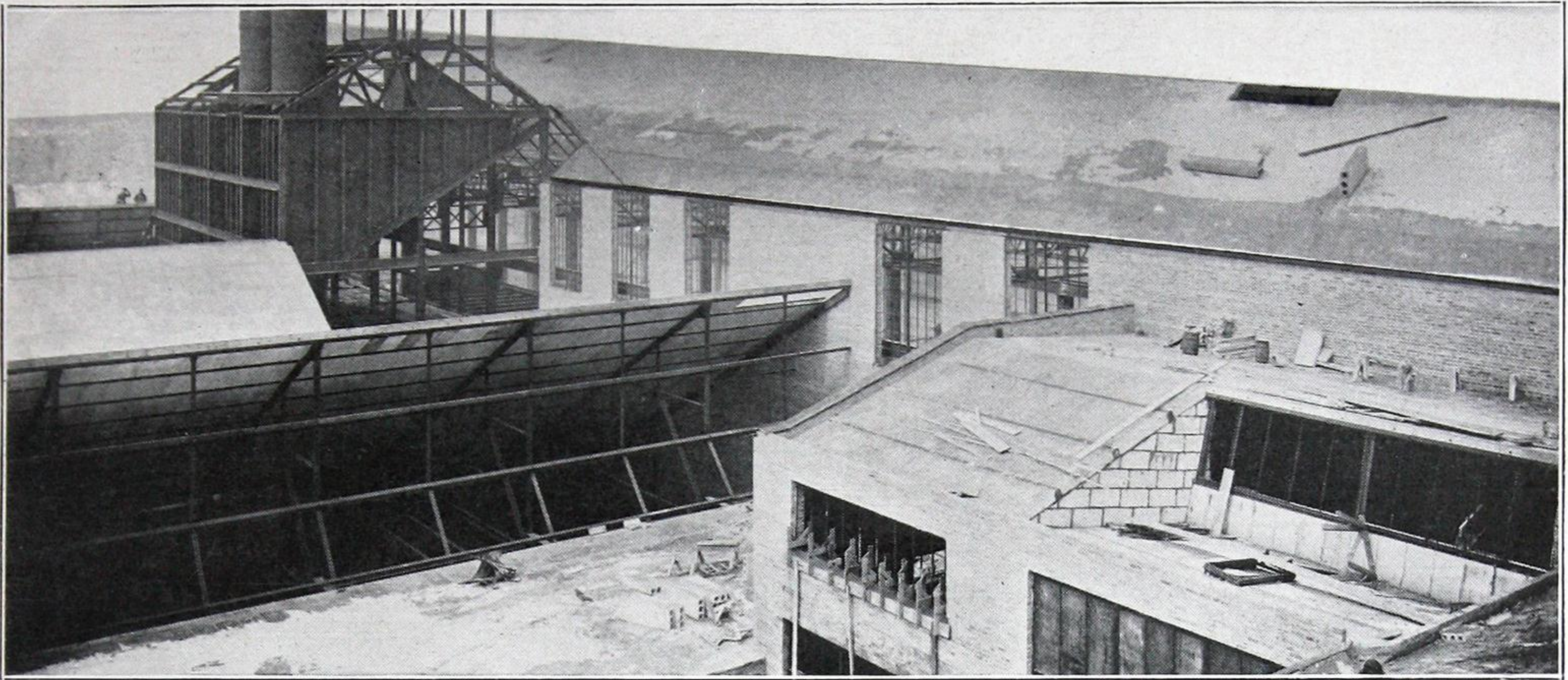
**ADAPTABILITY** This tile can be made of a  
shape and size to suit any  
condition of framing, and is of sufficient strength to  
meet any live load requirement. It is adaptable to  
either flat or steep roofs. The tile can be sawed to  
fit any roof framing.

**LOW COST** Gypsum Tile construction is  
lighter in weight than any other  
type of fire resistive roof deck which is to be finished  
with a protective roof covering. This light weight  
effects a worth-while saving in steel framing.

**SPEEDY** The large, light-weight units can be  
**ERECTION** laid in place directly following the  
erection of the steel framing—in  
any weather—and their installation will not delay  
the other building operations. The roof deck can  
be covered with any kind of composition roof cov-  
ering, which can be applied immediately after the  
roof deck is in place.

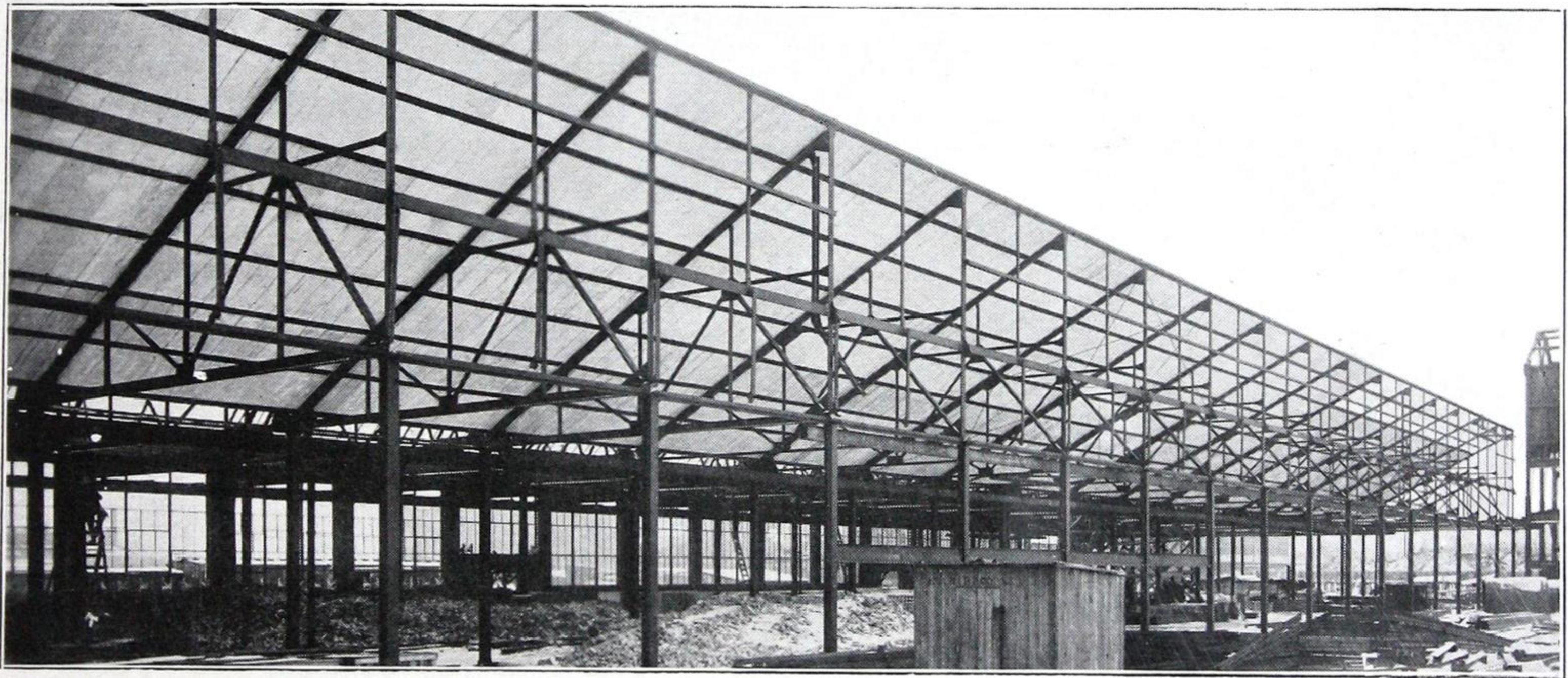
**FLAT** The finished roof presents a flat, un-  
**CEILING** broken ceiling surface, which is white  
in color and gives maximum light re-  
flection.



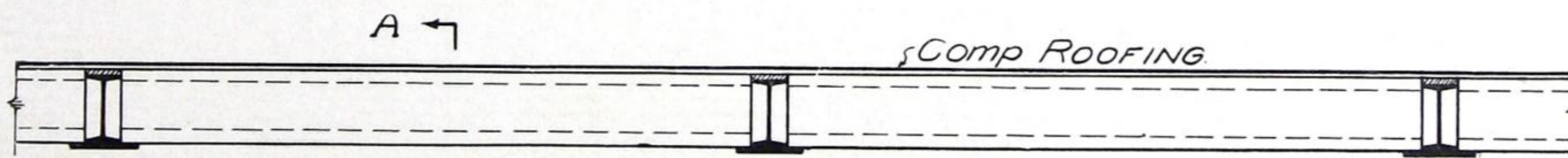


View Showing Pyrobar Roof Deck in Place and Ready for Application of Roof Covering. New International Harvester Co. Tractor Plant, Chicago, Ill.

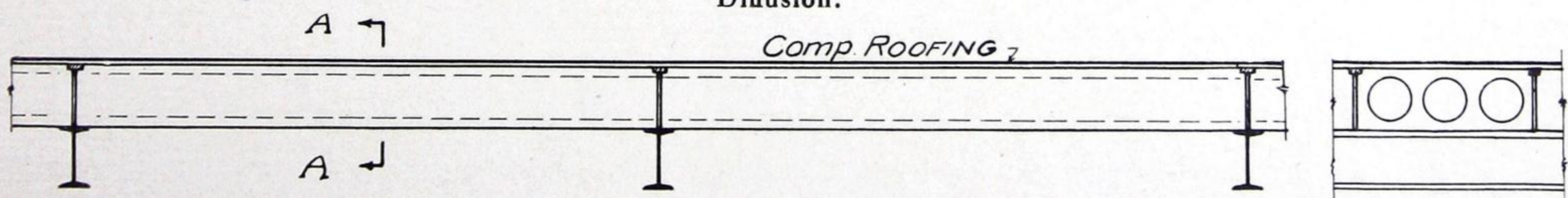
The construction engineers of the International Harvester Company adopted Pyrobar Long Span Hollow Tile for their new tractor plant in Chicago after having made a thorough investigation of all types of roof decks. Most of this building is a foundry and, in order to eliminate condensation drip, they required a roof with maximum insulation consistent with economical steel design. They also wanted a roof with a flat ceiling surface and one giving maximum light diffusion.



View Showing Under Side Pyrobar Roof Deck. Note Light Reflection and Uniform Flat Ceiling. International Harvester Co. Tractor Plant, Chicago, Ill.



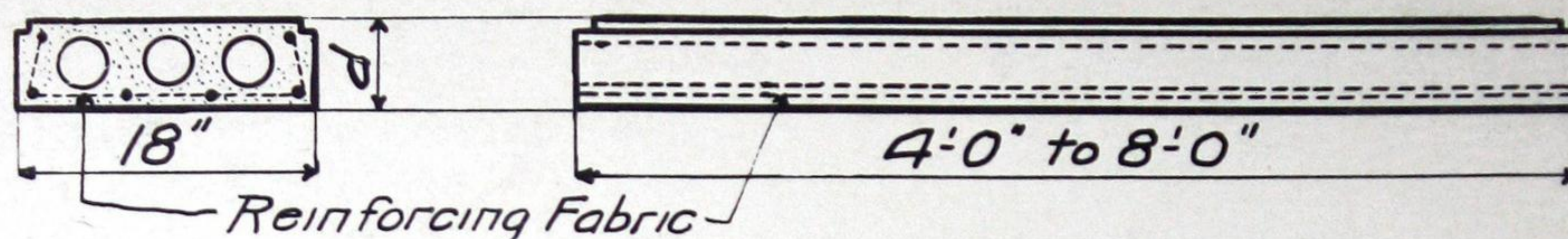
Typical Section Showing Pyrobar Long Span Hollow Tile Supported at Bottom of Purlins. Gives Maximum Light Diffusion.



Typical Section Showing Pyrobar Long Span Hollow Tile Supported on Top of Purlins, Gives Maximum Insulation



## PYROBAR GYPSUM LONG SPAN HOLLOW ROOF TILE



Span .....	4' 0"	5' 0"	6' 0"	7' 0"	8' 0"
Depth "d" .....	4"	5"	5"	6"	6"
Wt., lbs. sq. ft. ....	16	18½	18½	22	22

In general all tile on one continuous roof deck to be of depth required for maximum span.

## PURLIN TABLE FOR LONG SPAN ROOF TILE

Total Uniform Load--50 lbs. per sq. ft.

PURLIN SPAN			8'-0"	10'-0	12'-0"	14'-0"	16'-0"	18'-0"	20'-0	22'-0"	24'-0"									
SHAPE			I	C	I	C	I	C	I	C	I	C								
SLAB - SPAN	4'-0"	DEPTH - INS	3	4	4	4	4	5	5	6	5	7	6	7	7	8	7	9	8	10
		WT. PER FT. LB.	5½	5¼	7½	5¼	7½	6½	9¾	8	9¾	9¾	12¼	9¾	15	11¼	15	13¼	18	15
	5'-0"	DEPTH - INS	3	4	4	5	5	6	5	7	6	7	7	8	7	9	8	10	8	10
		WT. PER FT. LB.	5½	5¼	7½	6½	9¾	8	9¾	9¾	12¼	9¾	15	11¼	15	13¼	18	15	18	15
	6'-0"	DEPTH - INS.	4	4	4	5	5	6	6	7	6	8	7	9	8	10	8	10	9	12
		WT. PER FT. LB	7½	5¼	7½	6½	9¾	8	12¼	9¾	12¼	11¼	15	13¼	18	15	18	15	21	20½
	7'-0"	DEPTH - INS.	4	5	5	6	5	7	6	8	7	9	8	9	8	10	9	12	9	12
		WT. PER FT. -LB.	7½	6½	9¾	8	9¾	9¾	12¼	11¼	15	13¼	18	13¼	18	15	21	20½	21	20½
	8'-0"	DEPTH - INS.	4	5	5	6	6	7	6	8	7	9	8	10	9	12	9	12	10	12
		WT. PER FT. -LB.	7½	6½	9¾	8	12¼	9¾	12¼	11¼	15	13¼	18	15	21	20½	21	20½	22	20½

## SPECIFICATIONS FOR PYROBAR REINFORCED TILE

### Long Span Hollow Type

All roofs as shown on plans unless otherwise noted shall be constructed of Pyrobar Gypsum Long Span Reinforced Gypsum Roof Tile, manufactured by the United States Gypsum Company. The tile shall be placed directly on roof supports without mortar and with sides tight together. All "grouting joints" of the tile shall be filled with Gypsum grout composed of one part of unfibred gypsum cement plaster and three parts of clean, sharp sand.

Curbs under monitor or sawtooth sash, also the end walls of monitors or sawteeth, shall be constructed of 3" solid Pyrobar tile set in Gypsum cement mortar—joints to be well bedded and struck.

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